LEGISLATIVE TASK FORCE ON
DIABETES & OBESITY REPORT
TO THE CALIFORNIA LEGISLATURE

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LEGISLATIVE TASK FORCE ON DIABETES AND OBESITY

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EXECUTIVE SUMMARY

The Legislative Task Force on Diabetes and Obesity was established by the California State Assembly to address the serious population shifts in overweight, obesity, and diabetes in California, shifts that disproportionately affect Latinos, African Americans, Asian/Pacific Islanders and Native Americans.

Over 64 percent of U.S. adults are overweight and 17 percent of children and adolescents ages 2-19 years are overweight. Overweight is a significant risk factor for the development of diabetes, so it is not surprising that currently over 23 million children and adults have diabetes. Rates of diabetes and obesity have exploded in the U.S. over the past 20 years. Population increases in these rates are a direct result of cultural shifts toward unhealthy eating and physical inactivity. Some population groups have been affected disproportionately, and there are large disparities in the prevalence of obesity by race/ethnic groups.

The statistics on overweight and obesity in the State of California reflect the national trends with the prevalence of obesity increasing in California from 2001-2005. Currently, over 5.6 million California adults (21.2 percent) are obese and an additional half million adolescents (14.2 percent) are overweight or obese. Approximately 1.8 million (7 percent) of Californians have diabetes. The costs of physical inactivity, obesity, and overweight cost California residents over 28 billion dollars a year. A ten percent improvement in physical activity and healthy weight status could save nearly 13 billion dollars per year.

Because the population shifts in the prevalence of overweight and diabetes may be explained more by our physical, social, and economic environment than by our genes or personal preferences, significant shifts in our public sectors are required to truly reverse the trends of the past decades. Issues such as increasing portion sizes, increases in eating out, the impact of advertising and marketing on food choices and access to healthy food in schools and communities all present barriers to healthy eating. In addition, changes in the ways our communities are built, the lack of infrastructure for active transportation such as bicycling and walking, lack of adequate and safe recreational spaces in many communities, and deterioration in priority and funding for physical education programs in schools contribute to the challenges we currently face.

There are significant opportunities for legislators as well as key stakeholder groups (such as employers, schools, communities and parents) to implement policies and practices that fundamentally change our current environments and transform our population's health. Prevention and health promotion strategies to decrease obesity and diabetes in at-risk populations in the State are crucial to the political, social, economic, and personal health of Californians. Through this report, the Task Force has outlined the current issues and potential solutions as well as a set of legislative recommendations for healthy eating and physical activity. These multifaceted approaches will improve the health of all residents of the State of California:

Addressing Obesity in the Workplace

RECOMMENDATION 1: Develop tax incentive programs to encourage employers to adopt workplace policies that make healthy eating and physical activity easier for employees.

RECOMMENDATION 2: Develop requirements for the implementation of workplace facilities for health promotion.

RECOMMENDATION 3: Model best practices by having the State adopt all above recommendations as an employer, and lead the way for other employers in the State.

RECOMMENDATION 4: Work with insurance providers in the State to ensure that all employers are able to offer onsite physical activity equipment and/or programs for employees without liability concerns.

RECOMMENDATION 5: Build a coalition of business groups, e.g. California Business Group on Health, California Employers Association, etc., business leaders, and well as health experts to design and promote wellness activities and develop possible incentives.

Addressing Obesity in Schools

RECOMMENDATION 1: Develop integrated science-based wellness education curriculum standards for the State of California. Guidelines should ensure the school food and physical activity environments are consistent with the information and learning goals of the curriculum.

RECOMMENDATION 2: Increase funding and accountability for physical activity and physical education.

RECOMMENDATION 3: Establish State policy to ensure schools have joint use agreements with local communities so that facilities can be made available to the community after hours.

RECOMMENDATION 4: Partner with the California School Nutrition Association and other appropriate organizations to support the implementation of the healthy school model and develop public education campaign to encourage healthy choices.

RECOMMENDATION 5: Increase meal reimbursement for schools that provide fresh fruits and/or vegetables to students for breakfast and lunch.

RECOMMENDATION 6: Develop a long-term plan to encourage schools to build kitchens and inviting dining areas when facilities are newly built or redesigned.

RECOMMENDATION 7: Create statewide policy that restricts mobile carts from selling nutritionally unsound foods and beverages within ½ mile of school campuses and offer incentives to businesses in that same radius that offer healthy foods and restrict unhealthy foods.

RECOMMENTATION 8: Implement policies that ensure preschool and child care licensing/ certification is contingent upon meeting and implementing nutritional and physical activity guidelines.

Addressing Obesity in the Community

RECOMMENDATION 1: Develop statewide policy to link investments in infrastructure to land use policies that promote healthy development.

RECOMMENDATION 2: Establish additional funding streams to offer communities a "healthy makeover" by redesigning areas where disparities are greatest to meet above tactics.

RECOMMENDATION 3: Develop new opportunities for community residents to make healthy food choices.

RECOMMENDATION 4: Partner with California State Parks as well as other local and regional park districts to develop funding opportunities and guidelines for safe park recreation and maintenance and disseminate to district offices.

Addressing Obesity in the Home

RECOMMENDATION 1: Develop a supportive campaign to provide California residents with information to improve health. Ensure the campaign recognizes the constraints individuals face due to the physical and social environments in which they live.

Supporting Research

RECOMMENDATION 1: Increase state funding for research that informs the State's policies and programs to address the obesity and diabetes epidemics.

Fostering Leadership

RECOMMENDATION 1: Increase state funding to California's Public Health Programs to train leaders to address the obesity epidemic.

RECOMMENDATION 2: Provide financial support for students enrolled in public health degree programs. Offer training opportunities for current professionals to address obesity, diabetes and racial/ethnic disparities.

BACKGROUND

In September 2006, the California State Assembly passed ACR 114, a measure that established a Legislative Task Force on Diabetes and Obesity. This task force was charged with:

1. Studying and evaluating the various factors that contribute to the high rates of diabetes and obesity in Latinos, African Americans, Asian/Pacific Islanders and Native Americans in California.
2. Preparing a report containing recommendations to reduce the incidence of these debilitating conditions within these groups.

The Task Force included representatives from both the State Senate and Assembly as well as representatives from each of the University of California campuses, the American Diabetes Association, the American Heart Association and the general public.

The task force was convened in order to address the serious population shifts in overweight, obesity, and diabetes in California, shifts that disproportionately affect these target groups. A total of four meetings were held by the Task Force in 2007 and 2008 with experts from California and around the country presenting cutting edge work on the economic and health impacts of obesity and diabetes, strategies to target high risk groups, and the benefits of workplace wellness programs. It is expected that these findings will support legislation to improve the physical fitness and nutritional health of Californians by utilizing multifaceted initiatives that affect all residents of the state, but especially target high risk groups to reduce the disparities.

Prevalence of Obesity and Diabetes

Currently, more than 64 percent of U.S. adults are either overweight or obese (1999-2000 National Health and Nutrition Examination Survey (NHANES), which represents a 14 percent increase in the prevalence from NHANES III (1988-94),) and a 36 percent increase from NHANES II (1976 -80).[1] These dramatic shifts in population prevalence of overweight and obesity highlight the need to address the systemic causes of the issue at a population level.

In 2003, the U.S. Centers for Disease Control (CDC) published data demonstrating that the prevalence of obesity and diabetes was clearly on the rise in the United States. In 2001 the prevalence of obesity (BMI >30 kg/m2) increased to 20.9 percent, a 5.6 percent increase in one year and a 74 percent increase since 1991. Consequently, the prevalence of diabetes increased from 7.3 percent to 7.9 percent between 2000 and 2001, an increase of 8.2 percent in one year's time.[2]

The prevalence of overweight among children and adolescents shows even greater increases over time. Results from NHANES 2003-2004 showed that an estimated 17 percent of children and adolescents ages 2-19 years are overweight—more than 3 times the rates from the 1960s. Overweight increased from 7.2 to 13.9 percent amoung 2-5 year olds and from 11 to 19 percent among 6-11 year olds between 1988-94 and 2003-2004. Among adolescents aged 12-19, overweight increased from 11 to 17 percent during the same period.[3]

The dramatic increase in obesity for both adults and children is directly correlated with the increase in prevalence of type 2 diabetes. Obesity is a major risk factor for type 2 diabetes and about 55 percent of adults in the U.S. who have diabetes are also obese.[4] Diabetes is a chronic medical condition characterized by inappropriately elevated blood glucose due to resistance of cells to insulin or the body's inability to appropriately produce insulin, a hormone needed to promote the cellular metabolism of glucose. Over 23 million children and adults – **eight percent of the population** – have diabetes. In 2007, 1.6 million new cases of diabetes were diagnosed in people aged 20 years or older.[5]

Diabetes is currently the fifth leading cause of death in the U.S. with an economic cost (in 2002) of approximately $132 billion, or one out of every 10 health care dollars spent in the U.S.[6] Left uncontrolled, the serious consequences of type 2 diabetes include:[7]

- Heart and blood vessel disease
- Nerve damage (neuropathy)
- Kidney damage (nephropathy)
- Eye damage/blindness (retinopathy)
- Foot damage
- Skin and mouth conditions
- Osteoporosis

Over 23 million children and adults – eight percent of the population – have diabetes

The Health Impacts of Poor Nutrition, Physical Inactivity Obesity and Diabetes

Unhealthy eating and physical inactivity are leading causes of obesity, which is a significant co-morbidity of cardiovascular complications/disease (CVD). CVD is the leading cause of death in the U.S. and is rising globally. The U.S. Department of Health and Human Services (HHS) estimates that unhealthy eating and inactivity contribute to 310,000 to 580,000 deaths each year. These numbers reflect a total that is five times higher than the number killed by guns, HIV, and drug use combined.[8] The typical American diet is too high in saturated fat, cholesterol, salt, and refined sugar and too low in fruits, vegetables, whole grains, calcium and fiber.[9] This type of diet contributes to four of the seven leading causes of death and increases the risk of numerous diseases, including:[10]

- Heart disease
- Diabetes
- Cancer
- High blood pressure
- Obesity
- Osteoporosis
- Stroke

Overweight and obesity are associated with poor health outcomes. A CDC study showed that subjects with a body mass index (BMI) of 40 or higher had an increased risk of developing diabetes (7.37 times greater), high blood pressure (6.38 times greater), high cholesterol (1.88 times greater), asthma (2.72 times greater), and arthritis (4.41 times greater) when compared to healthy weight subjects (BMI values from 18.5 to 24.9).[11] A 2006 article by Adams et al. showed that people who are overweight (rather than

obese) at midlife (50 years of age) have a risk of death 20 to 40 percent higher than people who maintain a desirable weight.[12] The good news is that even modest changes in body weight can yield significant health benefits. Studies show that reducing body weight by just five to 10 percent can substantially reduce the risk of obesity-related health complications.[13]

The development of scalable, sustainable strategies to support healthy nutrition and adequate physical activity is critical to successfully impacting the obesity and diabetes epidemic.

Prevalence of Obesity and Diabetes in Minority Populations

Although the increase in prevalence of obesity has been noted in all regions, among all racial and ethnic groups, in both genders, and among all educational levels, some groups have been affected disproportionately. The most recent NHANES data show large disparities in the prevalence of obesity by race/ethnic groups among women. Non-Hispanic black and Mexican-American women were more likely to be obese than Caucasian women. Race/ethnic disparities in obesity were not observed in men in this study, however, other studies have shown, especially among children and adolescents, that obesity levels are disproportionately higher in males from minority groups.[14],[15],[16],[17] Approximately 53 percent of non-Hispanic black women and 51 percent of Mexican-American women 40–59 years of age were obese compared with about 39 percent of non-Hispanic white women of the same age. Minority women with low income appear to have the greatest likelihood of being overweight.[18]

Children and adolescents also have significant differences in obesity among race or ethnic groups with the prevalence of overweight in Mexican-American and non-Hispanic black girls higher than among non-Hispanic white girls. Among boys, the prevalence of overweight was significantly higher among Mexican Americans than among either non-Hispanic black or white boys.[19] Children in families with obese parents tend to be obese. The prevalence of obesity also tends to decrease as educational level increases.[20]

Ethnic disparities in rates of diabetes also are evident. After adjusting for population age differences, data from a 2004-2006 national survey showed people diagnosed with diabetes, aged 20 years or older include the following prevalence of diabetes among people under 20 years old by race/ethnicity:[21]

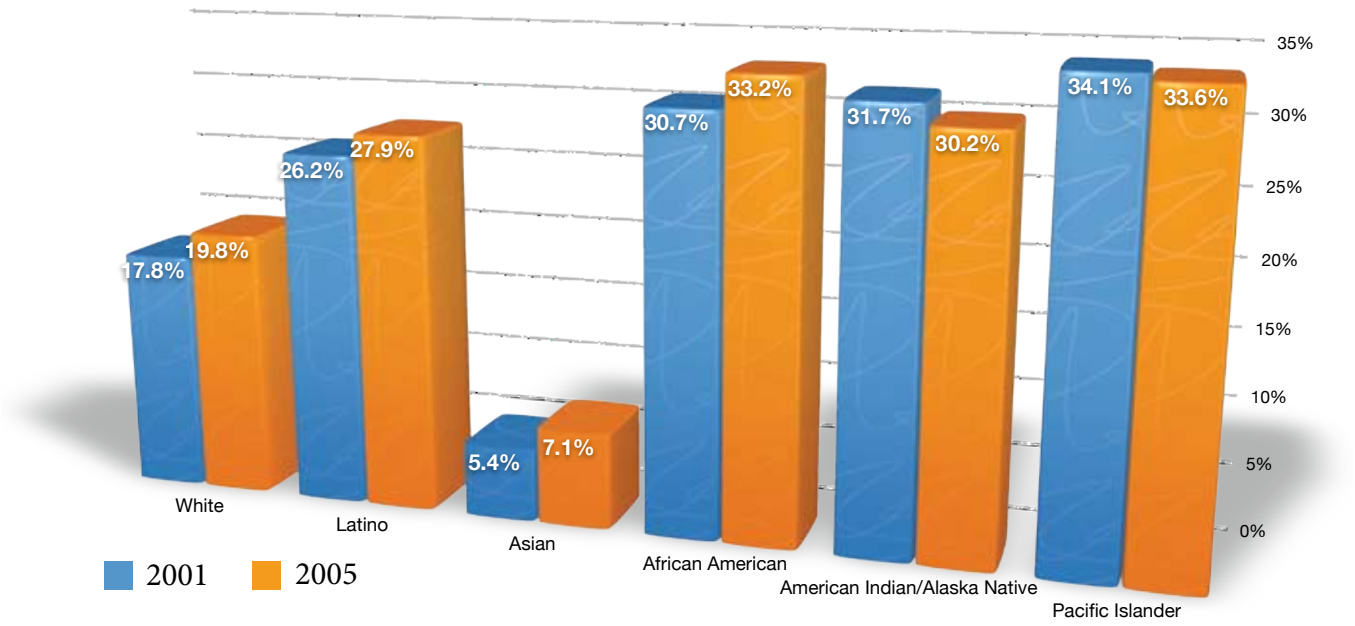
- 6.6 percent of non-Hispanic whites
- 7.5 percent of Asian Americans
- 10.4 percent of Hispanics
- 11.8 percent of non-Hispanic blacks

African Americans are 1.8 times more likely to have diabetes as non-Hispanic whites.[22] It is estimated that 2.5 million of all Hispanic/Latino Americans aged 20 years or older have diabetes. Mexican Americans are 1.7 times more likely to have diabetes as non-Hispanic whites. More data are needed to derive estimates for other Hispanic/Latino Americans.[23]

The statistics on overweight and obesity in the State of California reflect these national trends. The California Health Interview Survey (CHIS), one of the largest health surveys in the U.S. interviewed over 43,000 California households on health information, and showed that the prevalence of obesity increased in California between 2001-2005. Currently, over 5.6 million California adults are obese (21.2 percent) and an additional half million adolescents (14.2 percent) are overweight or obese. As shown in Figure 1, obesity rates are higher among Latinos, African Americans, American Indians and Pacific Islanders than among Caucasians or Asians.[24] In addition, as shown in Figure 2, obesity is more prevalent among lower-income adults.[25] For teenagers, obesity is more prevalent among Latinos and African Americans than Caucasians as shown in Figure 3.[26]

Figure 1

Obesity Prevalence by Race/Ethnicity and Year
Adults Age 18 and Over, California, 2001-2005

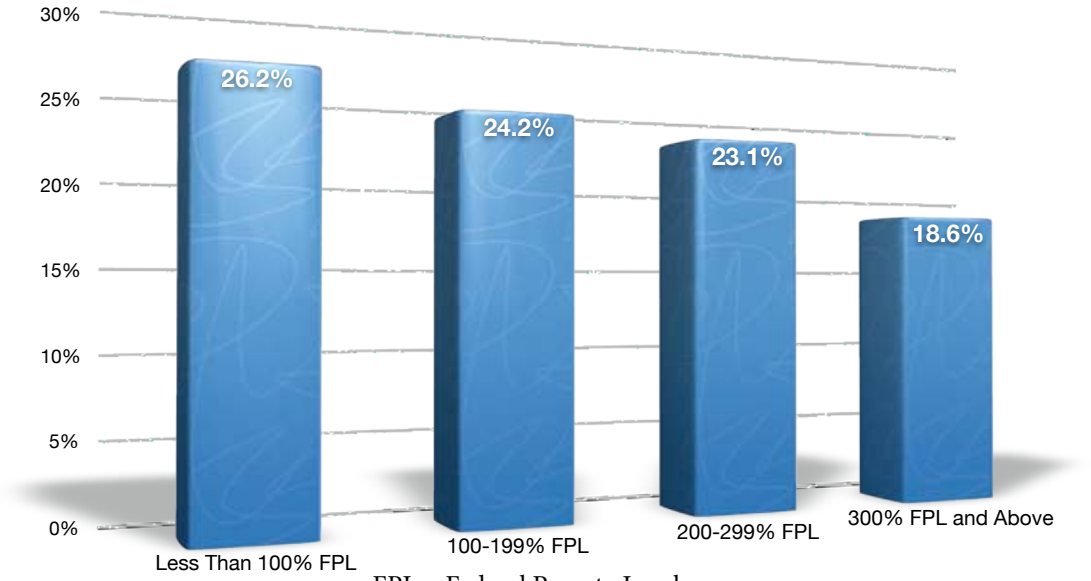


Source: 2001 and 2005 California Health Interview Survey

Approximately 1.8 million Californians (7 percent) have diabetes. This includes 300,000 with type 1 diabetes and more than 1.5 million with type 2 diabetes. The prevalence has increased from 6.2 percent to 7.0 percent from 2001 to 2005 – a huge increase over a short period of time. As shown in Figure 4, prevalence of diabetes is higher among Latinos, African Americans and American Indians compared to Caucasians. Almost 37 percent of Latinos with diabetes are diagnosed before the age of 40. This compares to only 20.4 percent of their Caucasian counterparts. As shown in Figure 5, low-income Californians also have a much higher prevalence of diabetes.

Figure 2

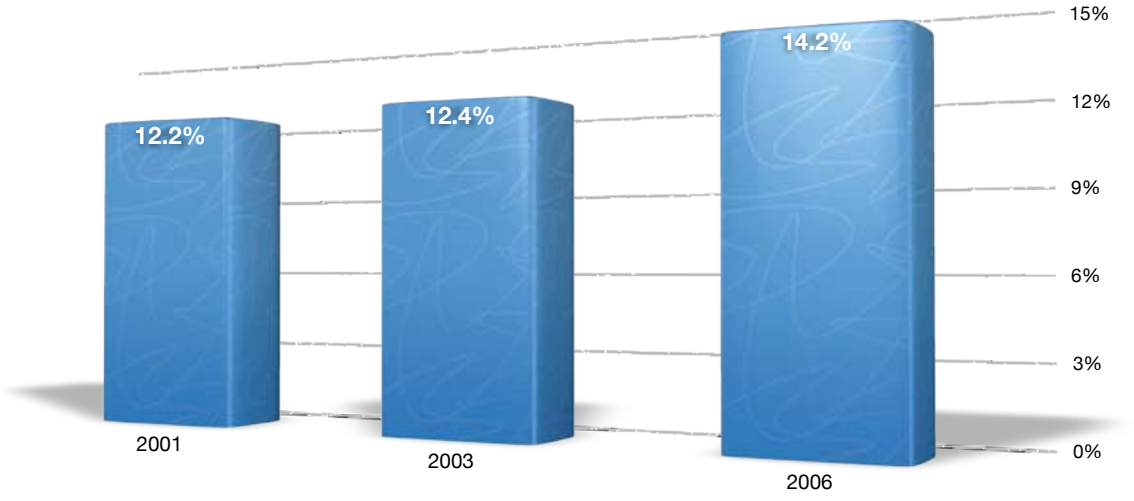
Prevalence of Obesity by Household Income
Adults Age 18 and Over, California 2005



FPL = Federal Poverty Level

Figure 3

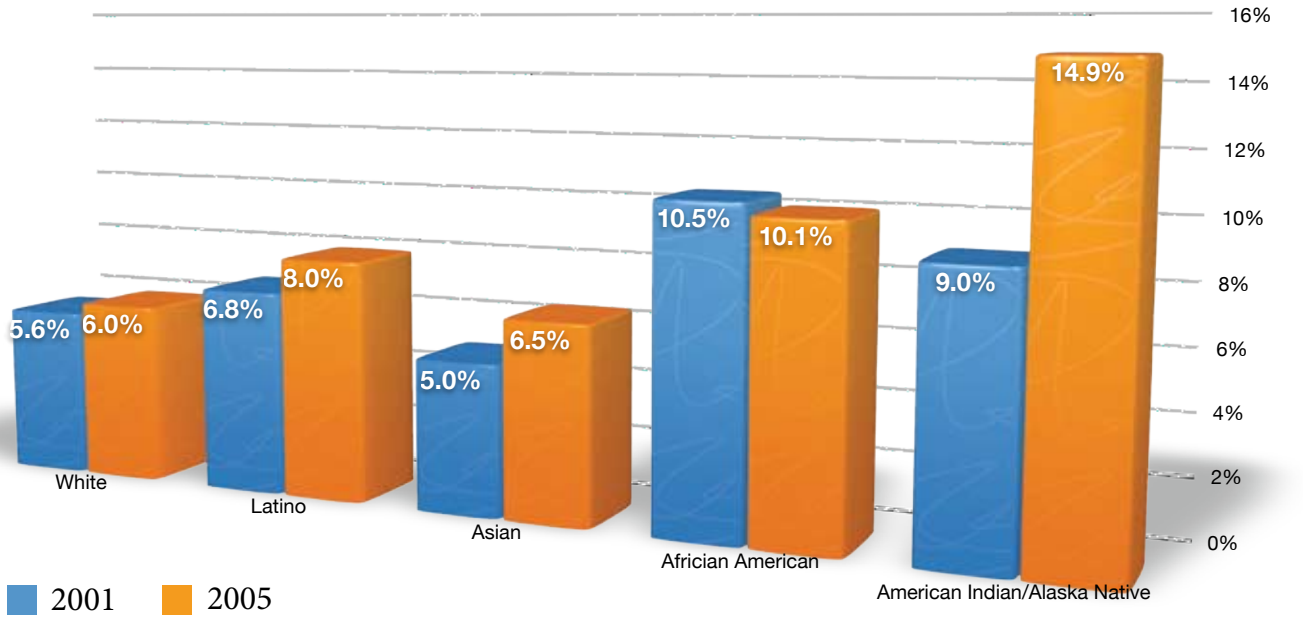
Prevalence of Overweight by Year
Adolescents Ages 12-17, California, 2001-2005



Mortality rates associated with obesity and diabetes are also higher within minority populations. Of all racial and ethnic groups, Native Americans and Alaskan Natives die at the earliest age due to diabetes, 68.2 years. This is 6.4 years younger than Caucasians. African Americans die from diabetes at a rate of 97.6 per 100,000, much higher than for any other racial/ethnic group.

Figure 4

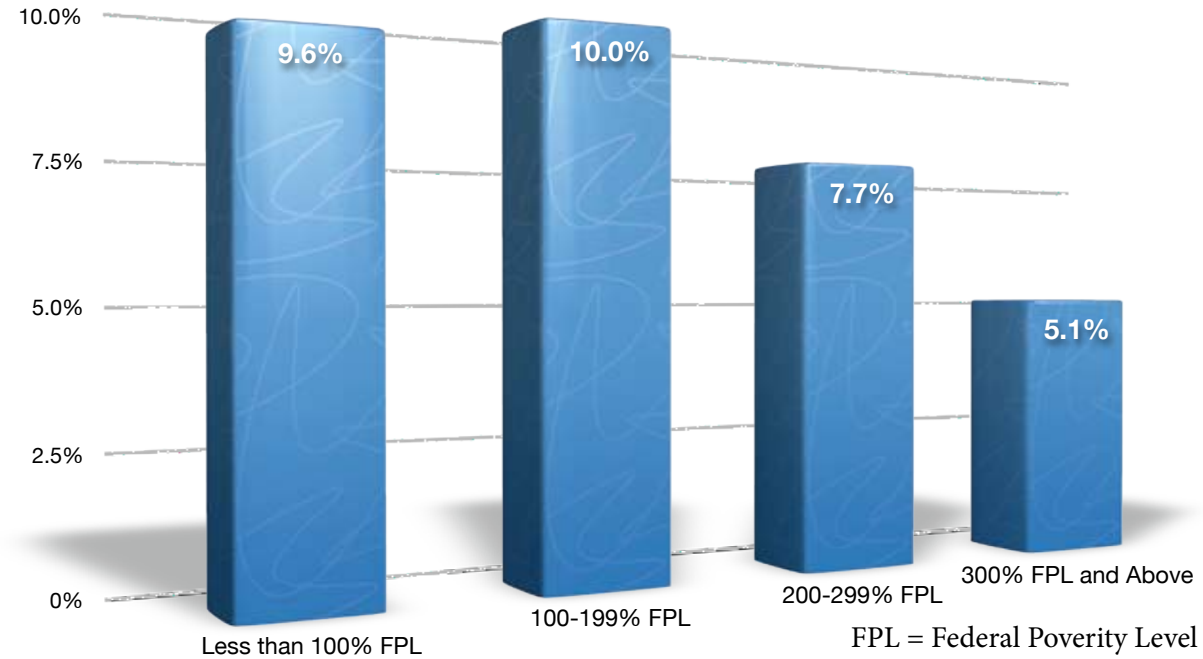
Diabetes Prevalence by Race/Ethnicity and Year
Adults Age 18 and Over, California, 2001-2005



Source: 2001 and 2005 California Health Interview Survey

Figure 5

Diabetes Prevalence by Household Income
Adults Age 18 and Over, California, 2005



FPL = Federal Poverity Level

Source: 2001 and 2005 California Health Interview Survey

Economic Impact of Obesity and Diabetes in California

A recent study commissioned by the California Department of Health Services revealed that, in year 2000 dollars, physical inactivity, obesity, and overweight cost California an estimated $21.7 billion a year in direct and indirect medical care ($10.2 billion), workers' compensation ($338 million), and lost productivity ($11.2 billion).[27] The annual costs of physical inactivity were estimated at $13.3 billion, with obesity at $6.4 billion, and overweight at $2.0 billion. The majority of these costs were shouldered by public and private employers in the form of health insurance and lost productivity. The study projected that these costs would rise to more than $28 billion in 2005 unless aggressive action was taken.

Researchers also estimated that a five percent improvement in the rates of physical activity and healthy weight over five years could save more than $6 billion, while a ten percent improvement could save nearly $13 billion. That is, if one or two Californians out of every 20 who are overweight or inactive were to reduce their BMI to a leaner category and become active, then significant savings could be realized.[28] Further, if the environment within which we live makes it possible for the entire population to make small improvements in nutrition and physical activity, the incidence of obesity will decrease and the cumulative economic savings would be significant. This demonstrates that even small changes at the population level could have significant impact on overall healthcare costs.

Underlying Issues Contributing to Obesity and Diabetes in Minority Populations

Across the state and nation, there is a need to change social norms around food and activity. Bold actions must be taken to reform environments to ensure healthy eating and physical activities become the culturally accepted, easy choices for all Californians. Overweight and obesity result from an energy imbalance – eating too many calories and not getting enough physical activity. These eating and physical activity behaviors are influenced by the genetic, as well as the physical, social and cultural environment. While all Californians suffer to some degree from environments that promote a less healthy diet and a more sedentary lifestyle (often called an obesogenic environment), unfortunately, there are inequalities in the environments of some minority communities that contribute to great disparities in obesity and diabetes.

Challenges to Healthy Eating

There are numerous issues that present challenges to accessing foods with good nutrition and successfully eating a healthy diet. Some of these issues include:

- ***Increasing Portion Sizes*** – The size of food portions in the United States has increased across multiple product types and venues, including restaurants, grocery stores, snack foods,

and soft drinks over the last 20 years. Changes in portion size translate into excess calories and short-term studies show that people eat more when they are presented with larger portion sizes. Even when there is information available about appropriate serving sizes, people generally do not correctly assess the amount they are eating. Controlling portion sizes can help limit calorie intake, particularly when eating high-calorie foods.[29]

- ***Frequency of Eating Out, Less Time for Home Prepared Meals*** – With the increase in activities and responsibilities of today's population, eating out and eating other prepared foods has become an often necessary substitute for a quick and convenient alternative to a homemade family dinner. This increase in restaurant dining seems to play a role in obesity, as studies show that with people who frequently eat breakfast or dinner in restaurants have about two times the risk of being obese as those who eat these meals at home.[30] Another study has shown that the frequency of eating out, particularly at fast-food restaurants, is associated with an increase in calorie and fat intake and with a higher body mass index.[31] In addition, the increased access to fast food restaurants compared to traditional restaurants makes fast food more available and affordable to high risk populations.[32]
- ***Link Between Advertising and Obesity*** – Researchers have shown a link between obesity rates and the amount of time spent viewing fast food advertising. Findings show that viewing more fast food commercials on television raises the risk of obesity in children. One study estimates that banning fast food advertisements from children's television programs would reduce the number of overweight children in the U.S. by 18 percent and decrease the number of overweight teens by 14 percent.[33] Even the Endocrine Society Clinical Practice Guidelines note the impact of advertising on childhood obesity and recommends policies that ban advertising unhealthy food choices to children.[34]
- ***School Food Environments*** – Foods and food policies in U.S. public schools become significantly less healthy as students progress from elementary to high school.[35] More than 96 percent of high schools have vending machines, and 91 percent of them sell some unhealthy options. Only 17 percent of elementary schools have vending machines on campus. In addition, 93 percent of high schools and 92 percent of middle schools sell foods and beverages a la carte, and

nearly 80 percent of these schools offer unhealthy options in their a la carte sales. One study shows that schools with a higher percentage of children from low-income families are significantly less likely to offer fruits or raw vegetables each day. Researchers also found:

- Only 43 percent participate in a government fruit and vegetable program that provides schools with fresh produce.
- In fewer than 20 percent of schools is the average lunch offered to students low in fat (no more than 30 percent of calories from fat).
- Approximately 55 percent of schools examined have an agreement with a beverage company that allows the company to be the sole distributor of sodas and other beverages in the school.

- ***Marketing of Unhealthy Foods*** – More than half of television advertisements directed at children promote foods and beverages such as candy, fast food, snack foods, soft drinks, and sweetened breakfast cereals that are high in calories and fat, and low in fiber and other essential nutrients. Young children are uniquely vulnerable to commercial promotion because they lack the skills to understand the difference between information and advertising.[36] In addition, a study of outdoor advertising content in six U.S. cities found more pervasive advertising of fast food, sugar-sweetened and alcoholic beverages in low-income White and Latino communities.[37]

- ***Access to Healthy Foods in At-Risk Communities*** – Poor dietary patterns have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density. Neighborhood differences in access to food may have an important influence on these relationships and health disparities in the U.S. National and local studies suggest that residents of low-income, minority, and rural neighborhoods are most often affected by poor access to supermarkets and healthful food. Research also suggests that neighborhood residents who have better access to supermarkets and limited access to convenience stores tend to have healthier diets and lower levels of obesity.[38] The cost of healthy food is higher in these communities and often simple dietary changes can increase a family budget by $1,000 annually.[39] This is compounded by the fact that convenience stores often display foods with lower nutritional value more prominently and healthy food options are often marketed poorly.[40]

Challenges to Attaining Physical Activity Goals

There are also challenges for citizens to actively engage in regular physical activity. Some of these issues include:

- ***Inadequate and Unsafe Recreational Spaces*** – The U.S. Centers for Disease Control and Prevention (CDC) has determined that creation of or enhanced access to places for physical activity can result in a 25 percent increase in the percentage of people who exercise at least three times per

week.[41] Unfortunately, there are often safety issues and inadequate recreational spaces for physical activity, particularly in minority communities. Examples of barriers to use of recreational spaces include apartment management practices that do not allow children to play in courtyard areas and unsafe curb-sides for walking. There is often a lack of infrastructure to support safe walking and bicycling routes as alternative transportation options. Approximately 30 percent of teens from lower-income families reported no access to safe parks (compared to 20 percent of teens from affluent families).[42] Research also shows a significant association between race, ethnicity and socioeconomic status and access to physical activity settings including parks, bike trails and public pools, among others.[43]

- ***Lack of Priority, Funding, and Enforcement of Physical Education (PE) Standards in Schools*** – School PE requirements are directly associated with physical activity among children and adolescents. Although California physical education requirements state that the physical fitness and motor development of children in the public elementary schools is of equal importance to that of other elements of the curriculum, a review found that at least 51 percent of districts are not in compliance with the current mandated minutes of PE for elementary schools. In addition, the lowest rates of adherence to mandated PE minutes are in primary grades K – 3rd. Funding cuts have eliminated PE teachers from elementary schools, resulting in large classes and instructors who are not certified.[44] , [45] It is critical that students have access to a high-quality, comprehensive and developmentally appropriate P.E. programs on a regular basis.
- ***Workplace Demands/Reductions in Physically Active Jobs*** – More American adults are in the workplace now than ever before, and workers continue to spend an increasing amount of time at work. Because workers spend so much time at work and often have increased family responsibilities, commute times, and other constraints, they may lack adequate time for exercise. Workplaces can and should make physical activity easier for workers.

The Role of Health Insurance and Telemedicine

Ensuring that children and individuals have access to health insurance is key to addressing diabetes and obesity within California citizens. Children who have health insurance:

- Receive more preventative care
- Have fewer needs go unmet
- Have better access to providers
- Do not delay care as frequently
- Fill prescriptions more often
- Have fewer hospital stays, and are less likely to be hospitalized for "ambulatory-sensitive conditions," such as diabetes

Increasing access to health insurance has also been shown to reduce racial and ethnic disparities in access, unmet needs, and continuity of care. Over 7.3 percent of children in California are uninsured, with significantly higher populations in

some at-risk populations with 11 percent of Latino children, 13.5 percent of Native Hawaiian/Pacific Islander children, and 17.5 percent of American Indian/Native Alaskan being uninsured. In addition, many of these children do not have a usual source of health care, including 12.4 percent of Latino children, 10.2 percent of African American children, 16.4 percent of Native Hawaiian/Pacific Islander children, 15.1 percent of American Indian/Native Alaskan children and 6.5 percent of White children.

Telemedicine is the use of technology to deliver health care at a distance. Telemedicine can help increase access to diabetes and obesity healthcare for these underserved populations. Some of the benefits of telemedicine include:

- Increased access to health care when care cannot be provided locally (e.g., pediatric subspecialty care)
- Reduced patient costs for travel
- Reduced absences from school and work to go to medical appointments
- Health system efficiencies and potential cost savings from improved care management and coordination
- Local economic gains as residents remain in the community for care
- On-site delivery of health education for schools, community centers and clinics

Telemedicine also has application in efforts to reduce the incidence of diabetes and obesity among children by:

- Increasing access to specialty care
- Improving screening and risk assessment
- Facilitating remote monitoring
- Providing disease management tools
- Delivering education for families and providers
- Facilitating coordination of care
- Supporting school based care

Legislative initiatives should facilitate research on methods for engagement of telemedicine technology and support the development of robust assessment tools and best practices for underserved populations. Efforts should also be made to fund and support telemedicine initiatives, specifically in regard to the treatment of diabetes and obesity.

Opportunities for Key Stakeholder Groups

The Legislative Task Force on Obesity and Diabetes believes there are tremendous opportunities to implement prevention and health promotion strategies that will decrease obesity and diabetes among at-risk populations in the state of California. Stakeholders must shape environments to:

- Encourage healthy behaviors and discourage unhealthy behaviors
- Improve access to healthy foods and discourage consumption of foods with low nutritional value
- Improve access to facilities and opportunities to increase physical activity, in workplaces, schools, and communities

The most effective and sustainable public health intervention approaches of the past two decades are the more "upstream" ones (structural/environmental vs. individual-level), involving changes in social norms. These types of changes have been successful in the following policy initiatives:

- Tobacco control
- Alcohol consumption and driving
- Littering and recycling
- Seat belt and child safety seat usage

Stakeholders that have the most potential impact on influencing these factors around obesity and diabetes include employers, schools, parents and community—as well as policy makers.

Opportunities for Employers

Overweight and obesity are associated with an increased cost of health care, lost work days, low productivity and high employee turnover rates in the workplace. In California alone, the annual cost of medical care attributable to obesity is estimated to be nearly $7.7 billion.[46] Employers can play a major role in the prevention of obesity related disease by adopting policies to promote healthier lifestyle choices by their employees. In the U.S., most people are beneficiaries of employer sponsored health plans, although the percentage is shrinking, and businesses absorb about a quarter of the total health care costs and provide health insurance to almost two thirds of the individuals who have coverage.

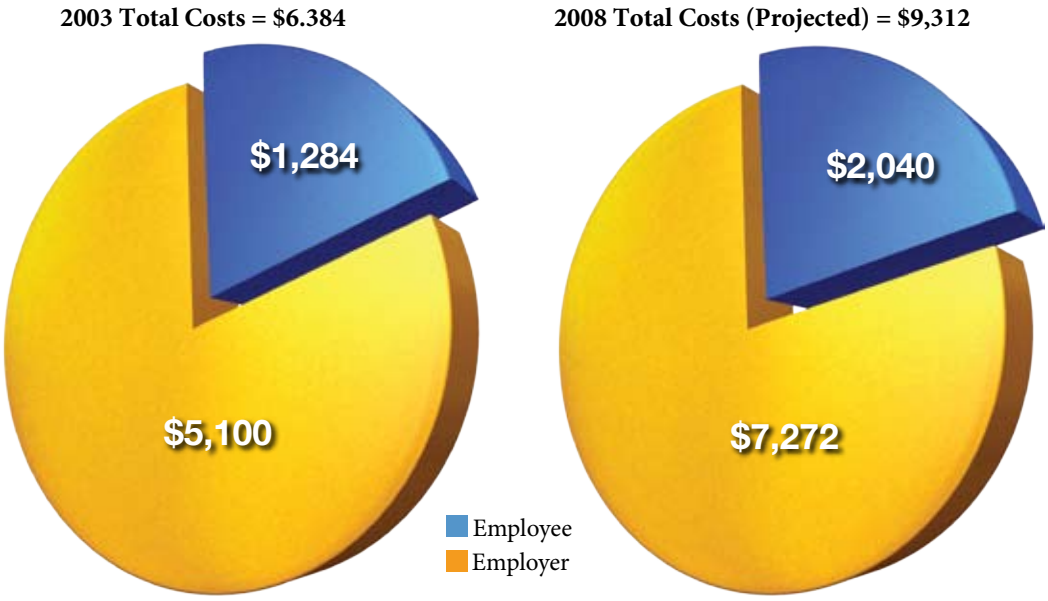
Figure 6 shows the current impact of health care costs on employers, and the increasing percentage of care being shifted to individual employees as a result of these skyrocketing costs. Many of the increases in costs of chronic care can be directly attributed to the rise in obesity and diabetes. Unfortunately, employee turnover has been a disincentive for employer coverage of prevention and long-term treatment programs. Employers have underinvested in preventive care because much of the cost of chronic disease was borne by Medicare. However, the impact of the obesity epidemic has resulted in much younger employees developing chronic disease, which has forced employers to become more active in trying to reduce the utilization of medical resources by promoting a wide variety of wellness initiatives.

Annual Employee / Member Health Care Costs

In 2008, U.S. health care costs will total approximately $2.2 trillion or 16% of the gross domestic product. It is projected that companies will pay an average of $9,312 per employee for health care. Employees are increasingly being asked to pay a greater share of these costs. This share has increased from $1, 284 in 2003 to $2,040 in 2008 - a 59% increase in only 5 years.

Figure 6

Comparison of Health Care Costs 2003 - 2006



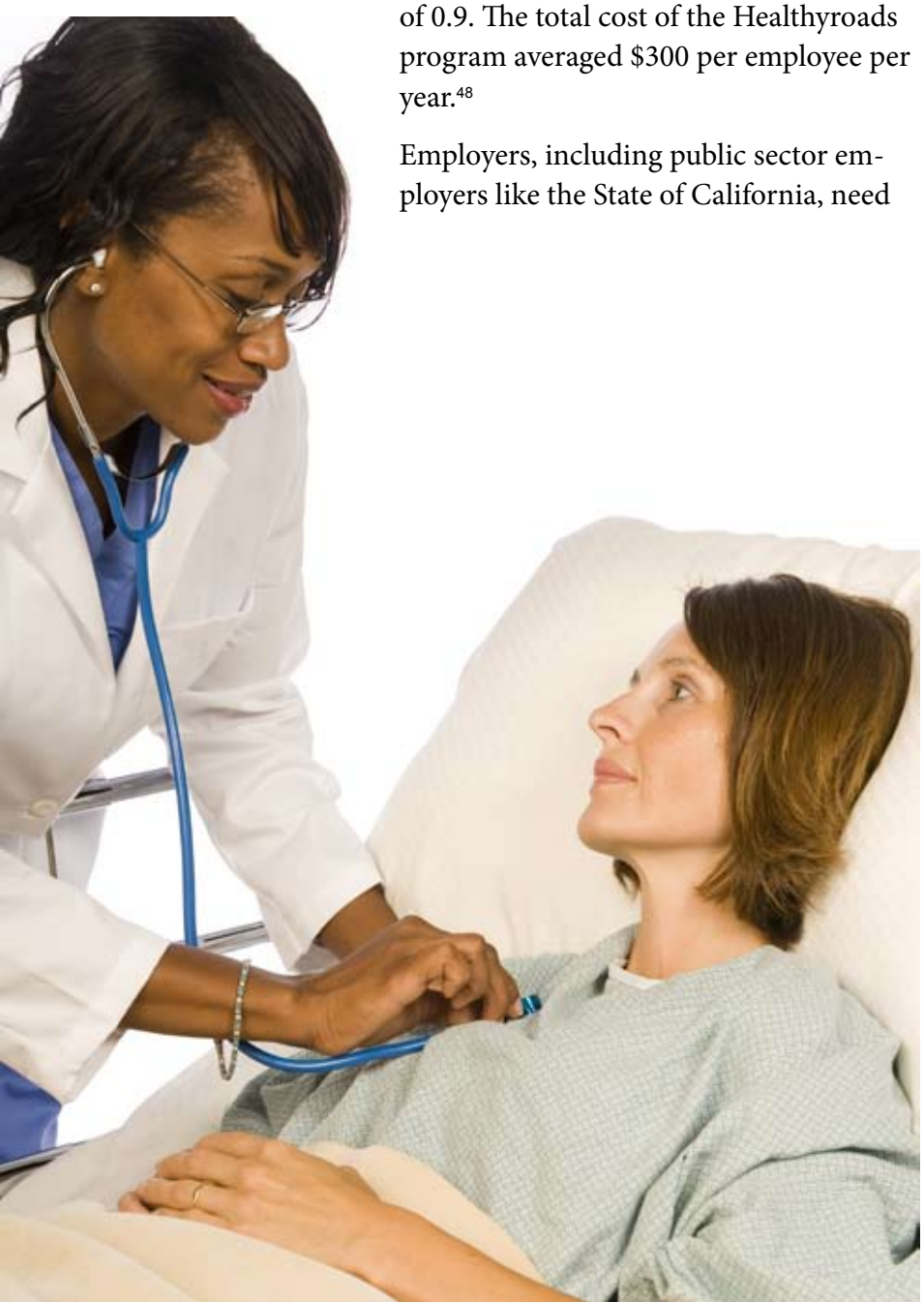
Source: Towers Perring 2008 Health Care Cost Survey

American workers need help from their employers to maintain healthy habits, and some who are already overweight want help to lose weight. According to a 2007 national survey of 500 members of the Synovate Global Opinion Panel (SGOP) employees that are overweight and work full-time outside of the home want assistance from their employers to help them lose weight. Two out of three respondents to this survey report that they are interested in employer-sponsored weight control programs. But less than half (44 percent) of overweight employees have access to these types of programs. However, companies deciding whether to invest in health improvement programs may need economic justification, including an estimate of the return on investment (ROI) resulting from such programs. The availability of this type of economic justification is increasing as more and more employers implement and actively measure the success of their prevention and wellness programs.

Increasingly, data are becoming available to document that workplace supports for healthy habits are cost effective. For example, a study to evaluate a program to reduce weight and improve health risk factors in obese employees concluded that it produced a short-term return on investment of $1.17 per dollar spent.[47] Researchers analyzed a group of 890

overweight or obese employees participating in an obesity management program called Healthyroads. The workers received coaching and other services to support their efforts to lose weight, improve eating habits, and increase physical activity. The participants' average age was 44; about three-fourths were female and the average BMI was 30.6. Over one year, the participants had reductions in seven out of ten health risk factors, including poor eating habits and reduced physical activity. On average, the participants lost about ten pounds, with a decrease in BMI of 0.9. The total cost of the Healthyroads program averaged $300 per employee per year.[48]

Employers, including public sector employers like the State of California, need to plan and implement programs that are comprehensive and sustainable and combine nutrition and physical activity programs. The literature supports an emphasis on interventions combining support for healthier eating with a structured approach to increasing physical activity in the worksite setting. Employers should reinforce the fact that a modest weight loss of only five to ten percent can yield significant health benefits for employees and can decrease overall health care costs for companies. Employers can support activities such as:



- Decrease access to low nutritional foods in vending machines, cafeterias and catered meals and increase access to healthy foods
- Provide incentives to participate in physical activity during the workday
- Ensure workplaces support active transportation to work, by including incentives, showering facilities, safe areas for bicycle storage, etc.
- Support workplaces to offer buying groups for fresh produce, have Farmer's Markets on site, etc.
- Provide recreational facilities to increase the opportunities for physical activity
- Offer access to support groups of employees who are focused on healthy eating and exercise (i.e., on-site Weight Watchers and other evidence based programs)
- Because liability often presents barriers to employer supported physical activity programs, the state should address this with statewide policies.

Opportunities for Schools

Children in the U.S. are heavier than ever before and despite the quantity of food they are consuming, childhood nutritional deficiencies persist. In fact, most school-aged children do not meet the dietary recommendations in the U.S. Dietary Guidelines for Americans.[49] Diets of school-aged children were characterized by low intakes of vegetables and fruit, very low intakes of whole grains and high intakes of sodium, saturated fat, and added sugars.[50] CDC reports that 70.7 percent of children do not eat five or more servings of fruits and vegetables during the day.[51] Children with inadequate fruit and vegetable consumption are at risk for low levels of Vitamins A, C and E, magnesium, phosphorus, potassium, and fiber and cancer protecting phytochemicals.[52]

Good nutrition combined with a physically active lifestyle can help children learn better, be healthier, and establish healthy nutritional habits that can prevent chronic disease development during childhood and beyond.

The State of California has made some legislative efforts to decrease the availability of non-nutritious food choices for school children. These efforts include:

- ***Senate Bill 12*** – Established the most rigorous nutrition standards in the country for food sold anywhere on school campuses outside the school meal program. The law establishes limits on fat and sugar content and portion size on all foods sold a la carte, in vending machines or school stores, or as part of a school fundraiser.
- ***Senate Bill 965*** – This legislation focused on reducing soda consumption as a strategy for addressing the epidemic of overweight children. This bill defined school beverage standards for high schools, eliminating the sale of soda and other sweetened beverages on high school campuses in California. Similar standards have already been established for elementary and middle schools through Senate Bill 677.

- ***Senate Bill 490*** – As of July 1, 2009, this bill will prohibit access to foods containing artificial trans fat through vending machines or food service establishments during school hours and will prohibit the use of artificial trans fat in the preparation of a food item served to pupils.

While these legislative initiatives have begun to remove some of the least healthy offerings on school campuses, plenty of foods and beverages with little to no nutritional value continue to be offered to students in large volumes on school campuses. Opportunities for additional policy changes regarding school meals and competitive food sales are needed.

These legislative initiatives are a starting point, and schools have significant opportunities to support additional activities that improve access to healthy foods and increase opportunities for children to participate in physical activity. Activities that could be implemented include:

- Improve the nutritional value of foods that are provided to students at meals and snacks and that are available through vending machines and school fundraisers
- Increase physical activity through the enforcement of physical education requirements
- Increase funding to hire elementary school PE teachers and better support of middle and high school PE programs
- Encourage community-school partnerships to build safe and active post school-day programs
- Improve environments around schools to facilitate walking and biking to school
- Provide funding and incentives to ensure after school physical activity opportunities are available and that healthy foods are provided in after-school programs
- Enhance and update school playgrounds to facilitate physical play; work to ensure joint use agreements between schools and communities to ensure schools can provide a safe place for children to play after school hours
- Integrate nutrition education throughout the Coordinated K-12 curriculum and look to replicate effective models which include nutrition education, school gardens, cooking activities, and cafeteria linkages.

Opportunities for Communities

Some of the most difficult challenges to healthy eating and physical activity are a result of the physical and infrastructure challenges of communities, particularly low-income and minority communities. Access to grocery stores with good selections of affordable healthy foods can be challenging and access to safe parks and playgrounds may be prohibitive. Legislative efforts should be undertaken to help communities revise their land use planning to improve access to physical activity and access to healthy foods. Communities can also combat the impact of marketing of foods with low nutritional value by limiting the locations and quantity of these marketing messages.

Providing resources, funding and policy guidance as well as education to local communities that encourages the adoption of healthy behaviors can generate social change. Nutritional education plans should discourage poor eating and activity behaviors that have contributed to increasing rates of obesity and diabetes.

The Latino Coalition for a Healthy California has developed recommendations for activities that can support community efforts. Some of these recommendations include:

- Establish healthy food and beverage standards at all community facilities, meetings and events
- Reassess fundraising strategies that include the sale of candy or unhealthy foods
- Eliminate advertising of unhealthy foods and beverages to children and youth in community facilities or community transportation, such as buses
- Adopt "complete streets" policies, making sure that streets and roads work for drivers, transit riders, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities
- Support worksite wellness for school, city and county employees by providing health plan benefits that cover age appropriate nutrition counseling and education as well as physical activity programs
- Establish healthy food and beverage standards at jurisdictional facilities and for all meetings and events
- Provide financial incentives for establishing physical activity facilities, grocery stores and farmers markets, and improving walkability, particularly in low-income communities
- Support the establishment of grocery stores that offer fresh, affordable produce and other healthy items in under-served neighborhood

Opportunities for Parents

While independent choices are important and parents are essential partners in shaping children's food and activity habits, public policies and environments must make it easier for parents to help their children adopt healthy habits. Economic and time constraints, as well as the stresses and demands of daily living, often make healthful eating and increased physical activity challenging on a daily basis for many families. Parents today are often working long hours, and an increased number of women have entered the workforce making family mealtime challenging. It is estimated that less than one-third of families have meals together. This leads to reliance on convenience foods that are often nutritionally unsound.

Parents have tremendous opportunities to positively impact the health of their children through modeling healthy food choices and exercise habits. These changes often influence not only the immediate family, but the corresponding community of family and friends. Parents can integrate lifestyle changes that increase exercise such as walking after dinner, walking to school or engaging in physical activities, instead of watching television or playing video games. Parents can also work toward family meals on most nights where healthy eating and good food choices can be modeled. Sometimes parents may need information and resources that help guide them to make these adjustments and to access state and government programs accordingly (i.e., WIC and USDA Food Pyramid).

According to the Institutes of Medicine (IOM), parents can take the following action to impact the healthy behaviors of their children:[53]

- Parents should promote healthful eating behaviors and regular physical activity for their children
- Choose exclusive breastfeeding as the method for feeding infants for the first four to six months of life
- Provide healthful food and beverage choices for children by carefully considering nutrient quality and energy density
- Assist and educate children in making healthful decisions regarding types of foods and beverages to consume, how often, and in what portion size
- Encourage and support regular physical activity
- Limit children's television viewing and other recreational screen time to fewer than two hours per day.
- Discuss weight status with their child's health-care provider and monitor age- and gender-specific body mass index (BMI) percentile
- Serve as positive role models for their children regarding eating and physical-activity behaviors.

POLICY RECOMMENDATIONS

Recommendations and tactics developed by the Task Force are focused on increasing the opportunities for healthy eating and adequate physical activity in target populations. To the extent possible, the recommendations consider actions that are most likely to provide the greatest results for the least expense. Recognizing the budget challenges facing the State at this time, preventive health measures are more important than ever. In order to significantly impact this issue in these populations, healthy eating and active living behaviors need to become the easy, accessible, inexpensive and most acceptable choices. Real transformations in social norms and physical environments must occur to reverse the trends that risk the future of California's residents.

For recommendations to achieve successful outcomes, they must be comprehensive, with a thoughtful combination of strategies that provide a layered solution to addressing obesity and diabetes. Strategies must address not only education, but concrete structural changes to support peoples' efforts to improve their health behaviors. The focus of these policies and other efforts must recognize that individual choices made regarding health habits are shaped by a combination of the social, physical, and economic environments in which we live. California can make huge strides toward improving residents' health by adopting bold measures to support health.

ISSUE: Obesity in the Workplace

The goal of workplace policies and programs must be to transform work environments to support the preventive health practices of employees. Employers must be incentivized to provide environments that help workers eat well and be physically active. The State can provide monetary incentives as well as structural support to facilitate this transformation, and should adopt the recommendations for its own employees.

RECOMMENDATION 1: Develop tax incentive programs to encourage employers to adopt workplace policies that make healthy eating and physical activity easier for employees.

Employers could receive tax incentives for instituting comprehensive wellness programs that might include the following types of policies and/or programs:

- offering paid breaks for physical activity during the workday
- incentivizing employees to utilize physically active commute options
- removing junk food from vending machines and other venues at workplaces
- ensuring healthy foods are offered whenever refreshments or meals are provided at work
- providing access to on-site exercise programs, gym facilities, or gym membership reimbursement
- establishing worksite farmer's markets, buying groups, and other mechanisms to facilitate the procurement of healthy foods for workers
- offering educational and support group activities to help workers adopt healthy habits

RECOMMENDATION 2: Develop statewide policies to require office buildings and other workplace facilities employing more than 100 people to include facilities for health promotion.

Similar to incentives to make buildings more "green", incentives to make workplaces more "healthy" must be developed.

- Health promotion facilities could include things such as:
  - Creating prominent and inviting stairwells
  - Installing showering facilities
  - Providing safe bicycle storage areas
  - Ensuring facilities for pumping and storage of breast milk
  - Establishing indoor and/or outdoor exercise facilities

RECOMMENDATION 3: The State should adopt all above recommendations as an employer, and lead the way for other employers in the State.

RECOMMENDATION 4: Work with insurance providers in the State to ensure that all employers are able to offer onsite physical activity equipment and/or programs for employees without liability concerns.

- Develop standard, state-wide risk release form and funding set-asides to handle issues that may arise

RECOMMENDATION 5: Build a coalition of business groups, e.g. California Business Group on Health, California Employers Association, etc., business leaders, and well as health experts to design and promote wellness activities and develop possible incentives.

This coalition should:

- Assess best practices for small, medium and large companies and publicize the results of these programs
- Determine the optimal model for the state to support employers to move forward with employment wellness goals
- Encourage employers to convene a group of employees to make suggestions regarding policies about foods served at the worksite, whether in cafeterias or brought in for special occasions
- Publish a set of recommended components of employee wellness programs and best practices for each size employer within two years

ISSUE: Obesity in Schools

The goal of school efforts is to establish schools as a model of healthy child development—rich with healthy food and beverage choices as well as opportunities for physical activity and devoid of unhealthy items (including product marketing). Students are required to spend a great deal of time in these (primarily) public institutions, institutions which must model and prepare them for a life of healthy living.

RECOMMENDATION 1: Develop integrated wellness education curriculum standards for the State of California that include guidelines to ensure the school food and physical activity environments are consistent with the information and learning goals of the curriculum.

- Curriculum should include hands-on learning about how foods grow, how to prepare healthy foods, how our bodies use food, and how physical activity promotes health, etc. and should reflect the diversity of California's students
- State funding opportunities should be available to schools to support and monitor the implementation of the standards
- Penalties should be developed for schools that fail to comply.
- Standards should lead to:
  - The elimination of snack foods of low nutritional value (i.e., chips, candy, soda, sports drinks) from vending machines, school stores, school fundraisers and lunch programs
  - The elimination of corporate sponsorship and advertising for foods of low nutritional value and regulations regarding any advertising/marketing of branded food and beverage products to children in school

RECOMMENDATION 2: Increase funding and accountability for physical activity and physical education.

- Fund PE teachers at the elementary school level
- Ensure adequate staffing and facilities at the middle and high school level

- Require schools to inform parents/ caretakers and local boards about the percent of tusents in their schools who fall outside of the "HFZ" in order to work toward significant improvements.
- Ensure that physical education requirements for all grade levels are achieved
- Develop system to ensure physical activity is emphasized throughout the school day and in after-school programs
- Support after school programs in target communities that offer physical activity programming

RECOMMENDATION 3: Establish state policy to ensure schools have joint use agreements with local communities so that facilities are available to the community after hours.

- Particularly in low-resource communities, school grounds often offer the only safe recreational facilities available to residents

RECOMMENDATION 4: Partner with the California School Nutrition Association and other appropriate organizations to support the implementation of the healthy school model and develop public education campaign to encourage healthy choices.

- Announce and publicize partnership initiatives through public service announcements (i.e., print and radio), collateral materials development and distribution (i.e., brochures, checklist) and web site information

RECOMMENDATION 5: Increase meal reimbursement for schools that provide fresh fruits and/or vegetables to students for breakfast and lunch.

RECOMMENDATION 6: Develop a long-term plan to encourage schools to build kitchens and inviting dining areas when facilities are newly built or redesigned.

RECOMMENDATION 7: Create statewide policy that restricts mobile carts from selling nutritionally unsound foods and beverages within ½ mile of school campuses and offer incentives to businesses in that same radius that offer healthy foods and restrict unhealthy foods.

RECOMMENTATION 8: Implement policies that ensure preschool and child care licensing/ certification is contingent upon meeting and implementing nutritional and physical activity guideline.

ISSUE: Obesity in the Community

The goal of community efforts to improve health should be to ensure community environments promote healthy eating and physical activity. Disparities in health are linked to the places people live, and the target population often lives in communities disproportionately lacking access to healthy foods and safe, affordable, easy options for physical activity.

RECOMMENDATION 1: Develop statewide policy to link investments in infrastructure to land use policies that promote healthy development.

- Infrastructure projects should be given priority based on the health promotion elements they include. For example, projects including the following would be prioritized:
- Facilitate walking and bicycling as transit and recreational options
- Provide housing near employment opportunities, transit, healthy food outlets, recreational facilities
- Include park development and improvements particularly in communities lacking access to safe and inviting facilities
- Develop grocery stores, farmer's markets, and other retail healthy food venues in areas currently lacking access to affordable healthy foods

RECOMMENDATION 2: Establish additional funding streams to offer communities a "healthy makeover" by redesigning areas where disparities are greatest to meet above tactics.

- Improve infrastructure for transportation alternatives to cars (BART, buses, high speed trains, bike lanes, sidewalks, etc.)
- Increase penalties for drivers engaging in unsafe driving particularly along posted bicycle routes or at intersections crossing walking paths

RECOMMENDATION 3: Develop new opportunities for community residents to make healthy food choices.

- Partner with grocery stores, restaurants, food producers and suppliers in target areas (i.e., lower income) to develop shelf and food labeling and nutrition ranking systems to encourage healthy food choices and to provide incentives to develop new and more nutritious products
- Continue to secure consumer information on nutrition and calorie content labeling on menus.
- Eliminate food and beverage product marketing on state property
- Make it easier for Food Stamp recipients to purchase healthy foods, through monetary incentives, easier access to making purchases at Farmer's Markets, etc.
- Increase neighborhood access to affordable fresh produce
- Create zoning requirements for marketing of foods with low nutritional value and earmark funds for enforcement of these requirements

- Provide subsidies to small stores so that they can price healthier foods cheaper than unhealthy foods

RECOMMENDATION 4: Partner with California State Parks as well as other local and regional park districts to develop funding opportunities and guidelines for safe park recreation and maintenance and disseminate to district offices.

- Provide incentives to cities/districts to improve parks in target (i.e., lower income) areas
- Earmark funds for upgrading green space and park security
- Publicize revamped parks to the community as a source for family fun and fitness
- Develop parks, bike and walking paths that are safe, well-maintained and promoted within the community as a source for family fun and fitness

ISSUE: Obesity in the Home

The goal of home efforts is to ensure that Californians' homes become oases of health, where adults and children can eat well, be physically active, spend time together and thrive. Public campaigns and other efforts can facilitate the opportunities for all California residents to build healthy home environments.

RECOMMENDATION 1: Develop a supportive campaign to provide California residents with information to improve health. Ensure the campaign recognizes the constraints individuals face due to the physical and social environments in which they live.

POTENTIAL TACTICS: Direct the Department of Health to develop a series of public service announcements that:

- Encourage children to engage in healthy eating behaviors
- Encourage parents to:
  - Provide healthy foods to children
  - Minimize TV/computer screen time
  - Limit the availability of foods with low nutritional value
  - Eliminate soda consumption within the household
  - Encourage physical play among children every day and physical activity for adults daily as well
  - Emphasize the importance of eating dinner together as a family
- Promote increased physical activity via promotion of the HHS recommendations: one hour per day for child; two and a half hours per week for adults
- Reform health insurance policies to incorporate uninsured children

ISSUE: Research

In order to succeed in the above measures, it is important for the State to continue to evaluate the effects of policies and programs that are implemented. Additionally, more research is needed to continue to identify the most promising interventions to improve health and reduce disparities among California residents.

RECOMMENDATION 1: Increase state funding for research that informs the State's policies and programs to address the obesity and diabetes epidemics.

ISSUE: Leadership

In order to accomplish the above recommendations, it is essential to have adequate capacity for leadership in the State. There is a critical public health workforce shortage in the United States and in California. The U.S. public health workforce is diminishing over time. In fact, there were 50,000 fewer public health workers in 2000 than in 1980, forcing public health workers to do more for more people with fewer resources. Twenty-three percent of the current U.S. workforce – almost 110,000 workers – are eligible to retire by 2012. To avert the impending economic obesity crisis, schools and programs of public health will need to train three times the current number of graduates over the next 12 years.

RECOMMENDATION 1: Increase state funding to California's Schools and programs of public health to train leaders to address the obesity epidemic.

- Increase funding to recruit and retain faculty with interests in obesity and diabetes and elimination of racial and ethnic health disparities
- Provide financial support for students enrolled in public health degree programs
- Offer training opportunities for current professionals to address obesity, diabetes and racial/ethnic disparities

RECOMMENDATION 2: Provide financial support for students enrolled in public health degree programs. Offer training opportunities for current professionals to address obesity, diabetes and racial/ethnic disparities.

CONCLUSION

By adopting the recommendations of the Task Force, the State of California can begin to reduce health disparities among Latinos, African Americans, Asian/Pacific Islanders, and Native Americans in California. Bold actions and clear commitment are needed to improve the health of the population and ensure optimal opportunities for all in the generations to come.

ENDNOTES

1 US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Data Services, Hyattsville, MD.

2 National Heart, Lung, and Blood Institute Obesity Education Initiative. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Bethesda, MD: National Institutes of Health; 1998. NIH Publication No. 98-4083.

3 Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. JAMA. 295:1549-1555. 2006.

4 Centers for Disease Control and Prevention. Prevalence of overweight and obesity among adults with diagnosed diabetes--United States, 1988-1994 and 1999-2002. MMWR. 2004;53:1066-1068

5 National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Statistics fact sheet: general information and national estimates on diabetes in the United States, 2005. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, 2005.

6 National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Statistics fact sheet: general information and national estimates on diabetes in the United States, 2005. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, 2005.

7 National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Statistics fact sheet: general information and national estimates on diabetes in the United States, 2005. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, 2005.

8 McGinnis JM, Foege WH. “Actual Causes of Death in the United States.” Journal of the American Medical Association. JAMA. 1993, vol.; 270, pp. :2207-2212.

9 Bowman S, et al. “The Healthy Eating Index: 1994-96.” Washington, D.C.: U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, 1998.

10 National Center for Health Statistics, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. “Deaths, Percent of Total Deaths, and Death Rates for the 15 Leading Causes of Death in 5-Year Age Groups, by Race and Sex: United States, 2000.” Hyattsville, MD: CDC, 2002.

11 Mokdad, A., Ford, E., Bowman, B., et. al.,”Prevalence of Obesity, Diabetes, and Obesity-Related Health Risk Factors, 2001”. JAMA. 2003;289:6-79.

12 Adams KF, Schatzkin A, Harris TB, et al. Overweight, obesity, and mortality in a large prospective cohort of persons 50 to 71 years old. N Engl J Med. 2006;355:763-78.

13 National Heart, Lung, and Blood Institute Obesity Education Initiative. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Bethesda, MD: National Institutes of Health; 1998. NIH Publication No. 98-4083.

14 Hedley et al. 200414 Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. JAMA. 2004 Jun 16;291(23):2847-50.

15 JAMA 291, 284715 Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. JAMA. 2004 Jun 16;291(23):2847-50.

16 Odgen et al. 2006 Ogden CL, Carroll MD, Curtin LR, et al. Prevalence of overweight and obesity in the United States, 1999-2004. JAMA. 2006;295:1549-55.

17 JAMA 295, 1549 Ogden CL, Carroll MD, Curtin LR, et al. Prevalence of overweight and obesity in the United States, 1999-2004. JAMA. 2006;295:1549-55.

18 American Obesity Association. Obesity in minority populations. Available at: http://www.obesity.org/subs/fastfacts/Obesity_Minority_Pop.shtml. Accessed September 19, 2006.

19 US Centers for Disease Control, National Center for Health Statistics. Obesity is Still a Major Problem. http://www.cdc.gov/nchs/pressroom/06facts/obesity03_04.htm. Accessed on January 5, 2009.

20 U.S. Centers for Disease Control. State-Specific Prevalence of Obesity Among Adults --- United States, 2007. MMWR. July 18, 2008 57(28);765-768.

21 National Diabetes Information Clearinghouse (NDIC). National diabetes statistics 2007. Accessed at http://diabetes.niddk.nih.gov/dm/pubs/statistics/. January 15, 2009.

22 National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Statistics fact sheet: general information and national estimates on diabetes in the United States, 2005. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, 2005.

23 National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Statistics fact sheet: general information and national estimates on diabetes in the United States, 2005. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, 2005.

24 2001 and 2005 California Health Interview Survey

25 2005 California Health Interview Survey

26 2005 California Health Interview Survey

27 Chenoweth, D. (2005). The Economic Costs of Physical Inactivity, Obesity, and Overweight in California Adults During the Year 2000: A Technical Analysis. Sacramento, CA: California Department of Health Services, Cancer Prevention and Nutrition Section and Epidemiology and Health Promotion Section.

28 Chenoweth, D. The Economic Costs of Physician Activity, Obesity, and Overweight in California Adults: Health Care, Workers' Compensation, and Lost Productivity. April 2005

29 US Center for Disease Control. Division of Nutrition and Physical Activity. Research to Practice Series No. 2: Portion Size. Atlanta: Centers for Disease Control and Prevention, 2006.

30 *Ma Y, Bertone E, Stanek E, Reed G, and Hebert James.J.* Association between Eating Patterns and Obesity in a Free-living US Adult Population. American Journal of Epidemiology. 158(1):85-92, July 1, 2003.

31 McCrory MA, Fuss PJ, Hays NP, Vinken AG, Greenberg AS, Roberts SB. Overeating in America: association between restaurant food consumption and body fatness in healthy adult men and women. Obesity Res. 1999;7(6):564-571

32 Mehta N and Chang V. Weight Status and Restaurant Availability: A Multilevel Analysis. American Journal of Preventive Medicine. February 2008. Volume; 34, Issue (2;):127-133.

33 Chou S, Rashad I, and Grossman M. Fast-Food Restaurant Advertising on Television and Its Influence on Childhood Obesity. *The Journal of Law and Economics*, vol. 51 (. November 2008); 51.

34 August GP, Caprio S, Fennoy I, Freemark M, Kaufman FR, Lustig RH, Silverstein JH, Speiser PW, Styne DM, Montori VM. Prevention and treatment of pediatric obesity: an endocrine society clinical practice guideline based on expert opinion. J Clin Endocrinol Metab. 2008 Dec;93(12):4576-99. Epub 2008 Sep 9.

35 Finkelstein D, Hill E, and Whitaker R. School Food Environments and Policies in US Public Schools. *Pediatrics*. Jul 2008; 122: e251 - e259.

36 Institute of Medicine of the National Academies. Advertising, Marketing and the Media: Improving Messages. September 2004.

37 Yancey AK, Cole BL, Brown RV, et al. A Cross-Sectional Prevalence Study of Ethnically-Targeted and General Audience Outdoor Obesity-Related Advertising. *Milbank Q.* In Press 2009.

38 Larson NI, Story MT, Nelson MC. Neighborhood environments: disparities in access to healthy foods in the U.S. Am J Prev Med, 2009 Jan; 36(1):74-81

39 Morland K, Wing S, Diez Roux A. The contextual effect of the local food environment on residents' diets: the atherosclerosis risk in communities study. *Am J Public Health.* Nov 2002;92(11):1761-1767

40 Lewis LB, Sloane DC, Nascimento LM, et al. African Americans' access to healthy food options in South Los Angeles restaurants. *Am J Public Health.* Apr 2005;95(4):668-673.

41 Kahn, E. [et al] and the Task Force on Community Preventive Services, "The Effectiveness of Interventions to Increase Physical Activity," *American Journal of Preventive Medicine 22*, no. 4S, 2002.

42 Babey, S.,, Diamant, A.,, Brown, R., and Hastert,, and Hastert T. *California Adolescents Increasingly Inactive.* Los Angeles: UCLA Center for Health Policy Research Health Policy, April 2005.

43 *Active Living and Social Equity—Creating Healthy Communities for All Residents: A Guide for Local Governments.* Washington, DC: International City/ County Management Association, January 2005.

44 UCLA Center to Eliminate Health Disparities, Samuels & Associates. Failing Fitness:Physical Activity and Physical Education in Schools. A policy brief from The California Endowment. Available from: http://www.calendow.org. Los Angeles, CA: The California Endowment; 2007.

45 San Diego State University. PE Matters for California Kids. A policy brief from The California Endowment. Available from: http://www.calendow.org. San Diego StateUniversity. Los Angeles, CA: The California Endowment; 2007.

46 http://www.healthpolicy.ucla.edu/pubs/files/AdultsObese_FS_120104.pdf46 http://www.healthpolicy.ucla.edu/pubs/files/AdultsObese_FS_120104.pdf Accessed January 4, 2009.

47 Baker K, Goetzel R, Pei X, Weiss A, Bowen J, et al. Using a Return-On-Investment Estimation Model to Evaluate Outcomes From an Obesity Management Worksite Health Promotion Program. *JOEM* September 2008, 50 (9): 981-990.

48 Baker K, Goetzel R, Pei X, Weiss A, Bowen J, et al. Using a Return-On-Investment Estimation Model to Evaluate Outcomes From an Obesity Management

Worksite Health Promotion Program. *JOEM* September 2008, 50 (9): 981-990.

49 USDA Food and Nutrition Service. Diet Quality of American School Aged Children by School Lunch Participation Status: Data from the National Health and Nutrition Examination Survey. July 2008.

50 USDA Food and Nutrition Service. Diet Quality of American School Aged Children by School Lunch Participation Status: Data from the National Health and Nutrition Examination Survey. July 2008.

51 USDA Food and Nutrition Service. Diet quality of American School-Age Children by School Lunch Participation Status: Data from the NHANES Survey. July 2008.

52 USDA Food and Nutrition Service. Diet quality of American School-Age Children by School Lunch Participation Status: Data from the NHANES Survey. July 2008.

53 Institutes of Medicine of the National Academies. Parents Can Play a Role in Preventing Childhood Obesity - Fact Sheet. September 2004. Accessed at http://www.iom.edu/Object.File/Master/22/617/Fact%20Sheet%20-%20Home%20FINALBitticks.pdf